CLIMATE CHANGE

A Time to Act

Dear Californian,

The science is indisputable: global warming is real and driven by human activity. The effects are already apparent on the planet and will become increasingly more difficult to manage unless we decrease greenhouse gases emissions.

Preeminent scientists, including scientists at NASA, the National Academy of Sciences, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey and the U.N. Intergovernmental Panel on Climate Change, have reached a consensus that the primary cause of climate change is man-made greenhouse gas emissions produced by burning fossil fuels: coal, oil and natural gas.

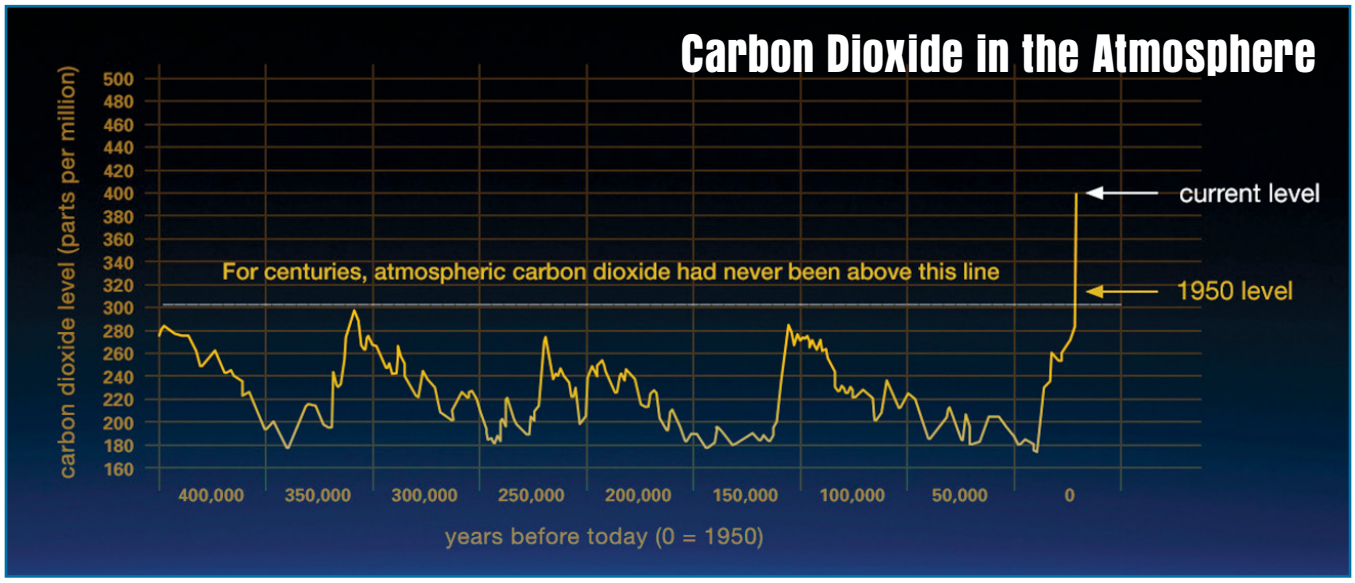
We must reduce our carbon footprint by adopting more efficient technologies, promoting zero-emission vehicles and embracing renewable energy sources. At the same time, we must prepare for more extreme weather patterns and build our infrastructure to be more resilient.

Changing course won't be easy. It will require us to manage problems that previous generations never faced. But solutions are possible. We must move forward as fast as we can – in our personal choices, in our local communities, as a state, through federal policy, and by upholding and advancing international agreements. Please join us in this fight.

Sincerely,

Dianne Feinstein
United States Senator

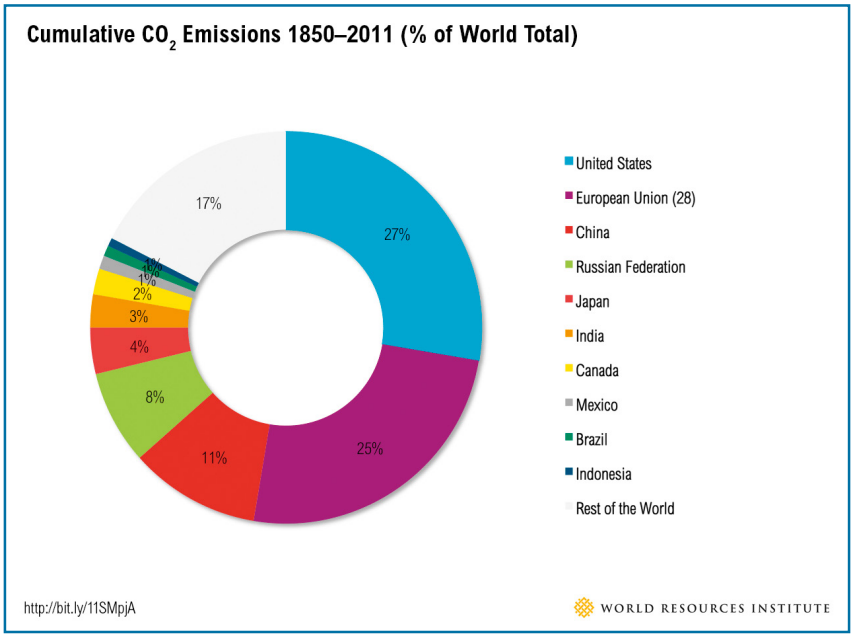
HUMAN ACTIVITY IS CHANGING OUR CLIMATE



Source: National Aeronautics and Space Administration

When we burn fossil fuels to produce electricity, drive gas or diesel cars, or heat our homes with natural gas, it releases carbon dioxide and other gases that stay in the atmosphere for decades. They're called greenhouse gases because they hold the heat of the sun on our planet like the glass walls of a greenhouse.

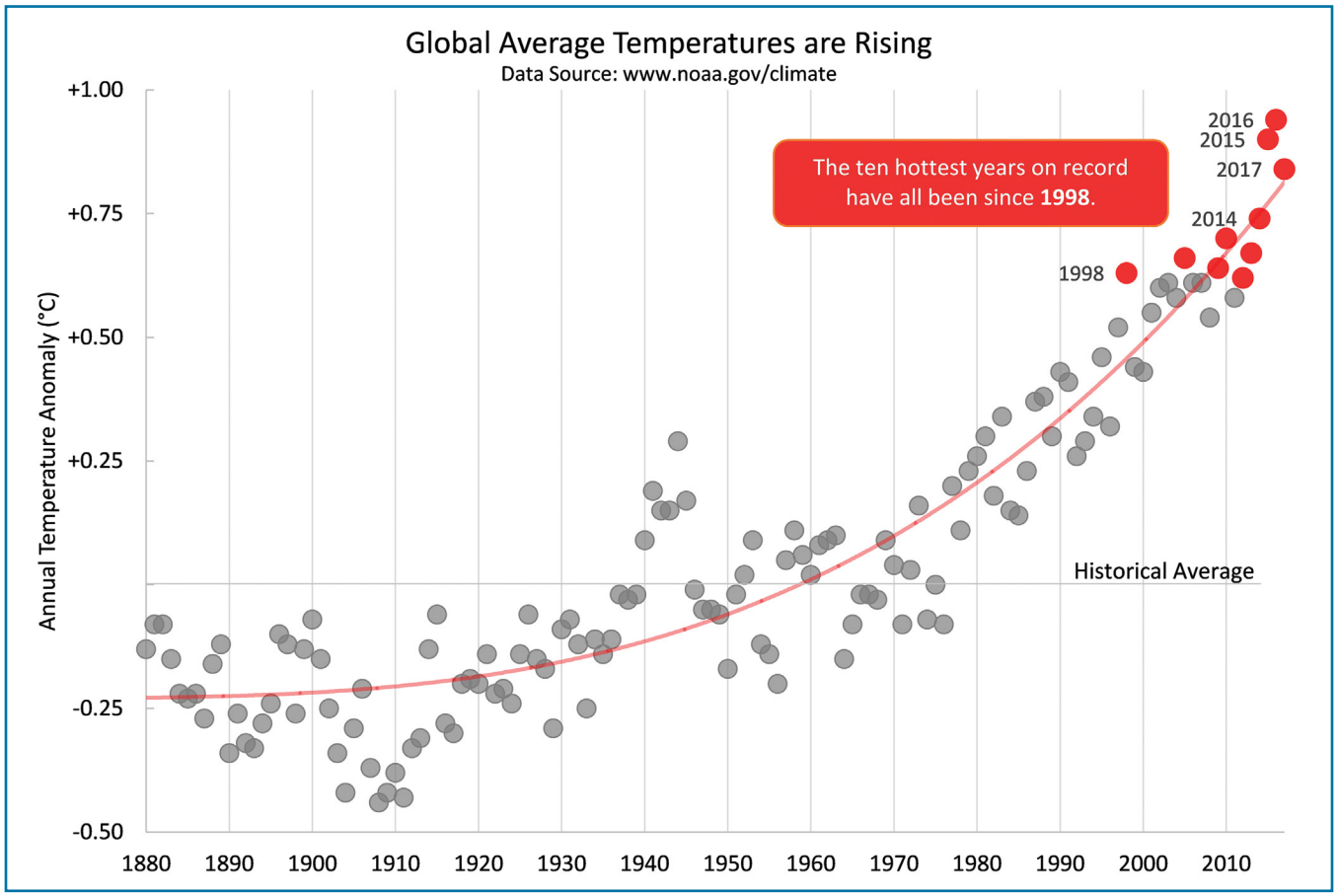
The concentration of greenhouse gases in the atmosphere has risen to levels not seen for millions of years, when Earth was much warmer. In the entire history of human civilization, we have never lived in a climate so hot.



Source: World Resources Institute

Greenhouse gases are a global problem. Today, China is the single largest emitter, but their per capita emissions are less than half the United States. Since emissions last in the atmosphere for decades, the United States bears primary responsibility for today's greenhouse gas concentrations, which were largely the result of our historical emissions.

RISING GLOBAL TEMPERATURES



Warmer Global Average Temperatures

The facts speak for themselves: greenhouse gas concentrations are resulting in higher temperatures worldwide.

- Climates are warming around the world. Evidence can be seen in global average air and ocean temperatures, widespread melting of snow and ice, and rising sea levels.
- The earth has already warmed 1.8 degrees Fahrenheit since 1900. Scientists are in overwhelming agreement that human activity is the cause of this change.
- The last four years have been the warmest on record and 16 of the warmest years on record occurred in the past 17 years.
- If no action is taken, scientists expect worldwide temperatures could rise by as much as 9 degrees Fahrenheit by the end of the century.

ENVIRONMENTAL DISRUPTION

Warming oceans

Global warming is causing water temperatures to rise even faster than air temperatures, and carbon dioxide concentrations are making the water more acidic.

Rising ocean temperatures are bleaching corals like the Great Barrier Reef, killing colorful coral habitats around the world.

- Fish and whales are moving farther north to find cold water. Seals and walruses are faced with reduced food sources.
- The ocean absorbs nearly one-quarter of all carbon dioxide emissions, making seawater increasingly more acidic. Ocean acidification endangers coral reefs and shell-forming organisms like crabs and lobsters.

Species extinctions

Global warming threatens species around the world with extinction.

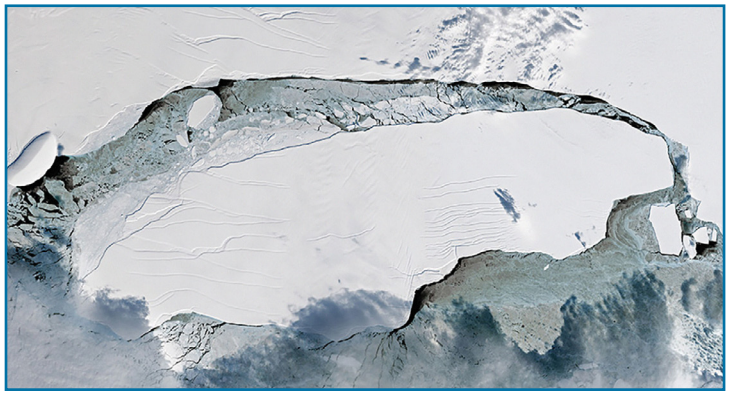
- The polar bear was added to the Endangered Species List in 2008 due to the loss of sea ice habitat. Its habitat is literally melting away.
- Approximately 20 to 30 percent of plant and animal species assessed so far are likely to be at increased risk of extinction if the global average temperature increases just 3 or 4 degrees.
- In Yosemite National Park, 14 of 50 animal species studied can no longer be found at lower-elevations they once occupied.

Ecosystem disruption

Global warming is leading to serious disruption of ecosystems worldwide.

- Invasive species are following warmer temperatures into new territory disrupting the ecosystem of their new habitats.
- Lyme disease cases in the U.S. have tripled in the last two decades and tropical diseases are now appearing as far north as the Gulf Coast.
- Warmer temperatures have allowed the spread of the mountain pine beetle, which infests and kills pine trees, ravaging millions of acres across the western United States.

MELTING ICE AND RISING SEAS



An iceberg the size of Delaware broke off from Antarctica's Larsen C ice shelf in 2017. Scientists fear even larger ice sheets could collapse as temperatures rise.

Melting of polar ice caps

The Arctic is warming twice as fast as the rest of the world, melting the ancient ice sheets that cover the North and South poles.

- The Arctic Circle's famed "Northwest Passage" was navigable without an ice-breaking ship for the first time in 2007. The Arctic Circle could be completely ice-free by 2040.
- The West Antarctic Ice sheet – an area twice the size of Texas – contains enough ice to raise sea levels by more than 10 feet and is starting to show signs of instability.

Rising Sea Levels

Melting glaciers and ice sheets have already caused global sea level to rise by three inches in the past two decades.

- Sea-level rise could have catastrophic effects on American coastal cities. In California, more than 450,000 people, 30 power plants, 3,500 miles of roadway, 280 miles of railway, 140 schools and 55 health-care facilities are within 4 feet of the high tide mark.
- Scientists warn that in the worst case scenario, a rise of as much as 8 feet by the end of the century cannot be ruled out.

Melting of alpine glaciers

Mountain glaciers are shrinking in size and retreating in elevation faster than expected.

- Glacier National Park has only 26 active glaciers today, down from 150 in 1850. One study estimates that some of the largest glaciers in the park may disappear completely by 2030.
- The total mass of glaciers in the European Alps has declined by half since 1850.

EXTREME WEATHER

Changes in weather patterns

Global warming is altering precipitation patterns, threatening agricultural water supplies, agriculture and our health.

- Droughts and floods are projected to increase dramatically, leading to water shortages, decreased crop production and more intense wildfires.
- Climate change will impact the health of millions of people, leading to more deaths, disease and injury due to heat-waves, floods, storms, fires, droughts and declining air quality.

Increased storm activity

Global warming is expected to increase the frequency of deadly tornadoes and the intensity of hurricanes.

- Warmer sea surface temperatures are creating more intense hurricanes and tropical storms. The 2017 Atlantic hurricane season, which included Hurricanes Harvey, Irma and Maria, was the worst season on record.
- The effects are not isolated to the coast. Deadly tornados, like the one in Joplin, Missouri that killed 158 people and injured more than 1,000 people in 2011, could also become more frequent.

NATIONAL SECURITY THREATS

Rising sea levels threaten military installations like Naval Base San Diego.

Climate change is exacerbating factors that lead to global instability and conflict. The Pentagon considers climate change to be a "threat multiplier," meaning it can aggravate existing conditions like poverty, environmental degradation, political instability and social tensions that enable terrorist activity and violence.

- Climate change is expected to exacerbate food and water shortages in the Middle East, increasing mass migrations and further inflaming tensions in the region.
- After a historic drought in Syria, failing crops forced rural residents to seek refuge in cities like Aleppo, followed by social unrest that sparked the ongoing civil war and humanitarian crisis.
- One-fifth of the population of Bangladesh lives within three feet of sea level. Rising oceans could submerge an area home to 18 million people by 2050.
- Pacific island nations such as Fiji, Tuvalu, Kiribati and the Maldives could soon be underwater, creating a refugee crisis.
- Extreme weather threatens troop readiness at numerous American military bases and installations around the globe.
- Naval Station Norfolk, the largest naval base in the world, is considered particularly vulnerable to sea level rise.

CALIFORNIA'S CHANGING CLIMATE

Rising Temperatures

California's average annual temperatures are projected to increase faster than the rest of the United States.

- Temperatures in the Sacramento–San Joaquin basin could increase by 6 degrees Fahrenheit this century.

Drought and Water Supply

Severe droughts in California are expected to occur more frequently and last longer due to climate change.

- Warmer winters are also reducing the amount of precipitation falling as snow and creating less Sierra Nevada snowpack, the main source of water for nearly two-thirds of the state.
- California's historic drought left more than 1.7 million dead or dying trees in our forests, fueling the worst wildfire season on record.

Agriculture Impacts

California's agriculture communities are already feeling the effects of climate change.

- Hotter temperatures could decrease the yield of many California crops by up to 40 percent in the coming decades, threatening the states $50 billion agriculture industry.
- An increased number of extreme heat days will make it harder and more dangerous for people to work in the fields.

Coastal Impacts

Sea levels in California could rise by 16 to 65 inches before the end of this century.

- Coastal erosion from rising seas threaten California's world famous coastline. If we don't act, two-thirds of Southern California beaches could be completely eroded by the end of this century.
- A combination of sea level rise and land subsidence could leave important infrastructure in the Bay Area underwater by 2100.

CALIFORNIA'S LEADERSHIP

There are almost 7,500 wind turbines in California, the second most in the United States. Wind power supports approximately 4,000 jobs in the state, including manufacturing jobs at 12 different manufacturing facilities.

California leads the nation in solar energy production, supplying enough clean energy to power almost 5 million homes and creating more than 100,000 jobs.

After President Trump walked away from the Paris Climate Accords, the United States is now the only nation that's not a part of the historic agreement to combat climate change. In the absence of leadership from the White House, California still remains committed to the accords. Our state has set an ambitious goal to slash greenhouse gas emissions, ensuring California is a leader in the global effort.

Under Governor Brown's leadership, California has passed legislation to address climate change by:

- Requiring 50 percent of the state's electricity to come from renewable sources by 2030. The state is on track to reach this goal by 2020, 10 years sooner than expected.
- Doubling energy efficiency savings by 2030.
- Reducing greenhouse gas emissions by 40 percent below 1990 levels by 2030.

Additionally, California's Zero Emission Vehicle program requires automakers to gradually produce more battery electric, fuel-cell, and plug-in hybrid vehicles each year. Nine other states have adopted the California program.

And our ground-breaking cap-and-trade program has generated more than $6 billion that was then invested in improving our infrastructure.

California's efforts have helped grow its economy to the 6th largest in the world, proving that smart investments in clean energy benefit both our planet and the economy.

REDUCING CAR EMISSIONS

Ten-in-Ten Fuel Economy Act

Senator Feinstein has long championed policies to address climate change. As the top Democrat on the Energy and Water Appropriations Subcommittee, one of her main priorities each year is to secure robust funding for research and development of renewable energy technologies and energy efficiency improvements.

Senator Feinstein led a bipartisan effort in 2007 to enact the *Ten-in-Ten Fuel Economy Act*, which required the average fuel economy standards for America's fleet of cars and trucks to increase by at least 10 mpg over 10 years. The bill also required the standards to be set as high as possible after that, helping put the average new vehicle on target to exceed 50 miles per gallon by 2025.

If kept in place, these standards will cut greenhouse gas emissions from cars and light trucks in half, saving 6 billion metric tons of carbon dioxide. In addition, these fuel standards will also save American families more than $1.7 trillion dollars in fuel costs, resulting in an average fuel savings of more than $4,000 per vehicle.

The legislation also required the establishment of the first-ever fuel economy standards for buses, delivery trucks and long-haul 18 wheelers, reducing greenhouse gas pollution from those vehicles by more than 1 billion metric tons.

PARIS CLIMATE ACCORD

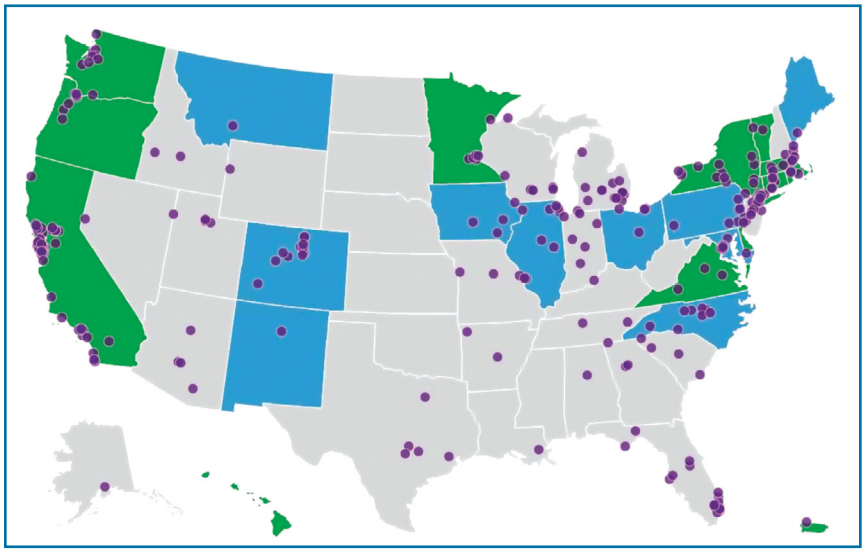
Climate change is an international problem that will require international solutions. After decades of careful negotiations, the world agreed in Paris in 2016 to hold global temperature rise to no more than 2 degrees Celsius. Countries pledged to implement policies by 2020 that would together cap warming at 2.7 degrees Celsius, and meet every five years to pledge additional changes, until climate change is under control.

The United States and China, the two largest emitters of greenhouse gases, agreed to join the historic Paris climate agreement in 2016.

President Trump announced he is withdrawing the United States from the Paris Agreement by 2020 and is working to undermine the regulatory policies that would have fulfilled our national pledge. This gives other countries an excuse to shirk on their own responsibilities and will make it harder to negotiate the next round of policy commitments.

That's why communities throughout the country have spoken up and taken action to show the world that we intend to keep our word, even without the help of the current administration. There is a lot of work left to be done.

State and Local Climate Action



Source: National Geographic

Twelve states and Puerto Rico (green) are members of the U.S. Climate Alliance and remain committed to achieving existing CO_2 emission reduction goals. Ten states and the District of Columbia (blue) pledged to follow the Paris Agreement but have not formally joined the alliance. Across the country, 274 cities (purple) have signed the Mayors National Climate Action Agenda, which asserts their commitment to lowering emissions at the local level.

YOU CAN MAKE THE DIFFERENCE

If you feel climate change is an important issue, please lend your voice to this effort. Talk and write to your representatives in Congress. Urge them to support of legislation to reduce greenhouse gas emissions and invest in renewable energy sources.

You can also make a difference at home. Here are a few suggestions to save energy and reduce your carbon footprint:

- Buy energy efficient appliances and light bulbs certified by ENERGY STAR
- Turn off lights and unplug devices you are not using.
- Take public transportation.
- Carpool with coworkers.
- Turn down the heat and air conditioning.
- Set your water heater to no higher than 120° degrees Fahrenheit.
- Consider fuel economy when purchasing or renting an automobile.
- Encourage a friend or family member to consider taking these steps to save energy.

FOR MORE INFORMATION

If you are interested in receiving further information about this important issue, please visit Senator Feinstein's website (http://feinstein.senate.gov) and register to receive e-mail updates.

You can also get more information by contacting the following agencies:

U.S. Global Change Research Program
1800 G Street, NW, Suite 9100
Washington, DC 20006
(202) 223-6262
www.globalchange.gov

California Air Resources Board
1001 I Street
Sacramento, CA 95814
(800) 242-4450
www.arb.ca.gov

California Environmental Protection Agency
1001 I Street
P.O. Box 2815
Sacramento, CA 95812-2815
(916) 323-2514
www.climatechange.ca.gov

U.S. Senator Dianne Feinstein
331 Senate Hart Building
Washington, D.C. 20510

www.feinstein.senate.gov

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